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AMIN. TUROCY & CALVIN, LLP
24TH FLOOR, NATIONAL CITY CENTER
1900 EAST NINTH STREET
CLEVELAND, OH 44114

EXAMINER
CHANKONG, DOHM

ART UNIT	PAPER NUMBER
2152	

NOTIFICATION DATE	DELIVERY MODE
07/31/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket1@thepatentattorneys.com
hholmes@thepatentattorneys.com
lpasterchek@thepatentattorneys.com

	Application No.	Applicant(s)
Office Action Summary	09/893,829	KRISHNASWAMY ET AL.
	Examiner	Art Unit	
	DOHM CHANKONG	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
 Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 May 2008</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-8,10-15,17-23 and 27</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-8, 10-15, 17-23 and 27</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

     1.☐ Certified copies of the priority documents have been received.

     2.☐ Certified copies of the priority documents have been received in Application No. _____.

     3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to Applicant's amendment and arguments, filed on 5/1/2008.

Claims 1, 14, 15, 23, and 27 are amended. Claims 1-8, 10-15, 17-23 and 27 are presented for

further examination.

2.   This action is a final rejection.

Response to Arguments

I.   <u>The §101 rejections of claims 1-8 and 10-14 are withdrawn but the §101 rejection of
claim 27 is maintained.</u>

As to claim 1, Applicant's amendment that the system includes a memory operatively

coupled to a processor overcomes the §101 rejection because the memory and processor

hardware components limit the claimed system to a machine within the meaning of §101. As to

claim 14, Applicant's amendment reciting a computer readable storage medium overcomes the

§101 rejection. A storage medium is defined in Applicant's specification as hardware and

therefore is interpreted as an manufacture within the meaning of §101.

However, claim 27 still suffers from the same issues detailed in the previous action.

Claim 27 recites a plurality of means that perform different functions. These means are

described in Applicant's specification as being implemented as components or software. Since

all of the means may be implemented as software only, then the entire system of claim 27 is

merely software *per se*. Therefore, the §101 rejection of claim 27 is maintained.

II.   The §112, second paragraph rejections of claims 1, 14, 15, 23, and 27 are withdrawn.

As to claims 1, 14, 15, and 23, Applicant's amendment clears up which claimed element

is having its capabilities extended. Thus, the §112 rejections for these claims are withdrawn. As

to the rejection of claim 27, Applicant has pointed to different sections of the specification that

describe various components corresponding to the means elements recited in claim 27.

Therefore, the rejection of claim 27 is withdrawn. However, as noted above, the various

components that correspond to the means may be merely software or code.

III.   Applicant's amendments to the independent claims do not overcome the cited prior art
        reference.

Applicant amends the independent claims to now recite, *inter alia*, that the optimization

of the remote method call includes at least one of determining an amount of data sent to the

object, determining a type of data sent to the object or determining which objects are invoked.

Hollander discloses this claimed limitation through his API call interception functionality.

Specifically, Hollander discloses determining the types of parameters or arguments that

are being sent to the object where the parameters or arguments are part of the intercepted method

call [column 11 «line 60» to column 12 «line 5»]. Applicant's specification discloses that

parameters of a method call are data that is to be sent to an object [pg. 3 «lines 1-9»]. Therefore,

based on Applicant's specification and the level of knowledge for one of ordinary skill in the art,

Hollander's parameters read on Applicant's claimed data sent to the object. And since Hollander

discloses determining the type of parameters within the method call and the method call is being

sent to the object, then Hollander also discloses the determining the type of data being sent to the

object.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claim 27 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The current position of the Patent Office in regard to statutory inventions under 35 U.S.C §101 for software claims is that software *per se* does not fall into any of the statutory categories. That is, software *per se* is neither a process, a machine, a manufacture, or a composition of matter.

Claim 27 is in a form that seems to invoke the rebuttable presumption that 35 U.S.C § 112, 6th paragraph analysis applies in the interpretation of the claimed elements. In general, "means-for" analysis finds corresponding "structure" in Applicant's specification and would be limited to the described embodiments for those means. However, Applicant's specification is entirely devoid of any description of corresponding structure for any of the "means" elements in claim 27. Instead, Applicant's specification describes that components and elements of the invention can be implemented as hardware, a combination of hardware and software, or software alone. Therefore, based on Applicant's specification, one of ordinary skill in the art may reasonably interpret the "means" elements as constituting software *per se*.

Claim 27 is directed to software alone and fails to recite any subject matter that falls within a statutory category.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   The rejection of the claim limitation directed to the interceptor's accessibility to

application code is informed by the Applicant's specification. Specifically, Applicant's

specification states that "intercepting a method call and making such interception accessible to

an application developer can include receiving control and receiving a data structure...populated

with information concerning the intercepted method call" [Applicant's specification, pg. 3, lines

1-4]. Further, the information concerning the call can include method names and input parameter

information [pg. 3, lines 4-9]. For the purposes of this rejection, the interpretation of an

"interceptor accessible to application code" relies on this explanation within Applicant's

specification.

5.   Claims 1-8 and 9-14 are rejected under 35 U.S.C §103(a) as being unpatentable over

Arnold et al, U.S Patent No. 6.393.497 ["Arnold"], in view of Hollander et al, U.S Patent No.

6.823.460 ["Hollander"], in further view of Clarke et al, U.S Patent Publication No.

2002|0035642 ["Clarke"].

6.   As to claim 1, Arnold discloses a system for interacting with an object, the system

comprising:

        an application code generic proxy that receives an intercepted method call, invokes a

        method on

the object, receives results from the object and passes results to the entity that generated the

intercepted method call based at least in part on the intercepted method call operability of the

application code generic proxy modified by the application code, the application code generic

proxy performs proxy pre-processing to optimize remote method call invocation before invoking

the method on the object [Figure 6 | Figure 7 «items 704, 705» | column 9 «lines 4-37»]. Arnold

does not expressly disclose a method call interceptor accessible to application code to at least

one of adapt or extend functionalities nor does Arnold expressly disclose performing machine

learning. Arnold also does not disclose that the optimization of the remote method call includes

at least one of determining an amount of data sent to the object, determining a type of data sent

to the object or determining which objects are invoked.

        With respect to an application code accessible method call interceptor and routing

intercepted methods to proxies, Hollander discloses these features. Hollander is directed to a

method of intercepting function calls that originate from the operating system and routing them

to a proxy [column 4 «lines 33-39»]. Hollander's user-supplied custom code corresponds to

Applicant's claimed application code and Hollander's function calls read on Applicant's method

calls. Hollander user-supplied custom code has access to a data structure that is populated by

information, such as the call's parameters, relating to the intercepted call [abstract : "input

parameters might be filtered and changed by the user code" | column 8 «lines 8-11»]. In this

manner, the user-supplied code can perform pre-processing on the intercepted call by affecting

its parameters and By way of this improved interception functionality, Hollander discloses that

the user code has enhanced and extended capability to control, manage and handle system events

[column 4 «lines 40-47»]. Hollander also discloses the optimization of the remote method call

includes at least one of determining an amount of data sent to the object, determining a type of

data sent to the object or determining which objects are invoked [column 11 «line 60» to column

12 «line 5» : Hollander teaches determining the type of parameters being passed to the object].

   Since such functionality is well known and utilized in conventional systems, it would

have been obvious to one of ordinary skill in the art to have modified Arnold's proxy system to

included Hollander's interception and optimization functionality. One would have been

motivated to enable an interceptor that was accessible to user-code so that users would have

more flexibility to manage the object environment by providing extended capability to control

and manage system related function calls.

   With respect to the machine learning feature, Arnold clearly discloses performing

preprocessing, including optimization of the invocation by caching previous requests [column 9

«lines 4-15»]. In the same field of invention, Clarke is directed to a system with a proxy system

in between [Figure 1]. The proxy utilizes machine learning in the step of preprocessing method

calls from the client in order to optimize the invocation of the calls [0027 where : Clarke

discloses that the proxy is adaptive in selecting appropriate servers with the proxy "learning over

time which origin servers are most prone to overload"].

   It would have been obvious to one of ordinary skill in the art to incorporate

Clarke's teachings of an adaptive proxy into Arnold's system. Clarke discloses that an adaptive

proxy helps control network congestion over the network. Thus, one would have been motivated

to modify Arnold's proxy to be adaptive to optimize network efficiency of handling requests

over the network.

7.   As to claim 2, Arnold discloses the object is located across a remote boundary [Figure 1

«item 606»].

8.   As to claim 3, Arnold discloses the object is marshaled by reference [column 8 «lines 38-

45»].

9.   As to claim 4, Arnold discloses the object is marshaled by value [column 9 «lines 10-

15»].

10.   As to claim 5, Arnold discloses populating a call information data store with information

associated with the intercepted method call, the call information data store is accessible to the

application code generic proxy [column 9 «lines 16-27» | see also Hollander, abstract].

11.   As to claim 6, Arnold discloses the call information data store is populated with at least

one of: a method name and a class/interface defining method data [column 7 «lines 46-49» |

column 9 «lines 59-66»].

12.   As to claim 7, Arnold discloses the call information data store is a message object that be serialized and passed across a remote boundary [column 9 «lines 16-27»].

13.   As to claim 8, Arnold discloses transferring control to a method in the application code generic proxy, the method in the application code generic proxy overrides a base class method defined in a base class object from which the application code generic proxy inherits [column 10 «lines 20-31»].

14.   As to claim 10, Arnold discloses proxy preprocessing further comprises at least one of: transaction processing, object migration, monitoring remote method calls, caching local data, caching remote data, and controlling remote method call invocations [column 9 «lines 4-27»].

15.   As to claim 11, Arnold discloses the application code generic proxy performing proxy post-processing after receiving the results from the object [Figure 7 «item 712»].

16.   As to claim 12, Arnold discloses the proxy post-processing comprises at least one of transaction processing, monitoring remote method calls, caching local data, and controlling remote method call invocations [column 9 «lines 4-37»].

17.   As to claim 13, Arnold discloses the proxy invoking the method on the object by invoking a method available in remote infrastructure [column 10 «lines 20-32»].

18.   As to claim 14, as it does not teach or further define over previously claimed limitations,

it is rejected for at least the same reasons set forth for claim 1.

19.   Claims 15 and 20-22 are rejected under 35 U.S.C §103(a) as being unpatentable over

Colyer, U.S Patent No. 5.903.725, in view of Clarke, in further view of Hollander.

20.   As to claim 15 Colyer discloses a method for interacting with an object, the method

comprising:

        creating a base class proxy object [column 7 «lines 37-51» : parent class];

        creating an application code generic proxy, the application code generic proxy

inherits from the base class proxy object [column 7 «lines 37-51» | column 11 «lines 45-64»];

        overriding a base class method defined in the base class, the overridden method receives

an intercepted method call [column 3 «lines 1-11» | column 12 «lines 4-18»];

        intercepting a method call on the object [column 3 «lines 1-11»];

        routing the method call to the application code generic proxy [column 3 «line 61» to

column 4 «line 44»];

        invoking the method on the object [column 3 «line 53» to column 4 «line 25»];

        receiving a first result from the object [column 3 «lines 44-59»]; and

        returning a second result to the entity that generated the intercepted method call [column

3 «line 61» to column 4 «line 6»].

        Colyer does not expressly disclose adapting the proxy functionality with the proxy

performing pre-processing comprising transaction processing and machine learning nor does

Colyer teach that the interception is made accessible to a developer to at least one of adapt or

extend functionalities. Colyer also does not disclose optimizing the remote method call by

determining an amount of data sent to the object, determining a type of data sent to the object, or

determining which objects are invoked.

With respect to the pre-processing functionality, Clarke discloses this feature. Clarke is

directed to a client-server system with a proxy system in between [Figure 1]. Clarke's proxy is

adaptive in the sense that the proxy utilizes machine learning in the step of preprocessing method

calls from the client in order to optimize the invocation of the calls [0027 where : Clarke

discloses that the proxy is adaptive in selecting appropriate servers with the proxy "learning over

time which origin servers are most prone to overload"].

It would have been obvious to one of ordinary skill in the art to incorporate

Clarke's teachings of an adaptive proxy into Colyer's system. Clarke discloses that an adaptive

proxy helps control network congestion over the network. Thus, one would have been motivated

to modify Colyer's proxy to be adaptive to optimize network efficiency of handling requests over

the network.

With respect to an application code accessible method call interceptor and routing

intercepted methods to proxies, Hollander discloses these features. Hollander is directed to a

method of intercepting function calls that originate from the operating system and routing them

to a proxy [column 4 «lines 33-39»]. Hollander's user-supplied custom code corresponds to

Applicant's claimed application code and Hollander's function calls read on Applicant's method

calls. Hollander user-supplied custom code has access to a data structure that is populated by

information, such as the call's parameters, relating to the intercepted call [abstract : "input

parameters might be filtered and changed by the user code" | column 8 «lines 8-11»]. By way of this improved interception functionality, Hollander discloses that the user code has enhanced and extended capability to control, manage and handle system events [column 4 «lines 40-47»]. Hollander also discloses the optimization of the remote method call includes at least one of determining an amount of data sent to the object, determining a type of data sent to the object or determining which objects are invoked [column 11 «line 60» to column 12 «line 5» : Hollander teaches determining the type of parameters being passed to the object]. Hollander also discloses performing custom user-directed application processing to at least one of monitor or control the processing of a message between the application code generic proxy and the object [column 2 «lines 45-52»].

Since such functionality is well known and utilized in conventional systems, it would have been obvious to one of ordinary skill in the art to have modified Colyer's proxy system to included Hollander's interception and optimization functionality. One would have been motivated to enable an interceptor that was accessible to user-code so that users would have more flexibility to manage the object environment.

21.   As to claims 20-22, Colyer discloses the object is located across a remote boundary [Figure 4], the object is marshaled by reference [column 11 «lines 51-54»] and the object is marshaled by value [column 4 «lines 9-12»].

22.   Claims 17-19, 23 and 27 are rejected under 35 U.S.C §103(a) as being unpatentable over Colyer, Clarke, and Hollander, in further view of Arnold.

23.   As to claim 17, Colyer does not disclose the preprocessing including load balancing,

object migration, object persisting, monitoring remote method calls.

24.   In the same field of invention, Arnold discloses a proxy performing preprocessing

including object migration, monitoring remote method calls, caching local data, caching remote

data, and controlling remote method call invocations [column 9 «lines 4-27»].

It would have been obvious to incorporate Arnold's preprocessing steps into

Colyer's proxy object. Arnold discloses that such steps improve network response to method call

invocation. Thus, one would have been motivated to combine the references to improve upon

Colyer's proxy for the reasons stated in Arnold.

25.   As to claims 18 and 19, Colyer does not expressly disclose performing post-processing.

26.   Arnold discloses the application code generic proxy performing proxy post-processing

after receiving the results from the object [Figure 7 «item 712»], whereby the post processing

includes transaction processing, monitoring remote method calls, caching local data, and

controlling remote method call invocations [column 9 «lines 4-37»]. It would have been obvious

to one of ordinary skill in the art to incorporate Arnold's post processing steps into Colyer's

system to enable caching of objects which improves network response to method call invocation.

27.   As to claims 23 and 27, as they do not teach or further define over the previously claimed

limitations, they are rejected for at least the same reasons set forth for claims 15 and 17-19.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DOHM CHANKONG whose telephone number is (571)272-

3942. The examiner can normally be reached on Monday-Friday [8:30 AM to 4:30 PM].

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bunjob Jaroenchonwanit can be reached on 571.272.3913. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dohm Chankong/
Examiner, Art Unit 2152

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2146

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination
	09/893,829	KRISHNASWAMY ET AL.
	Examiner	**Art Unit**	
	DOHM CHANKONG	2152	